

10. Price Determination Under Different Market Forms

Market Structure

Market is a system by which buyer and seller bargain for the price of product, settle the price and transact their business - buy and sell of product. Market structures are basically the number of firms in the market that produce identical goods and services. Market structure influences the behavior of firms to a great extent. The market structure affects the supply of different commodities in the market.

“According to Prof. R. Chapman, "The term market refers not necessarily to a place but always to a commodity and the buyers and sellers who are in direct competition with one another."

According to A.A. Cournot, "Economists understand by the term 'market', not any particular place in which things are bought and sold but the whole of any region in which buyers and sellers are in such free intercourse with one another that the price of the same goods tends to equality, easily and quickly."

According to Prof. Cournot's definition is wider and appropriate in which all the features of a market are found.

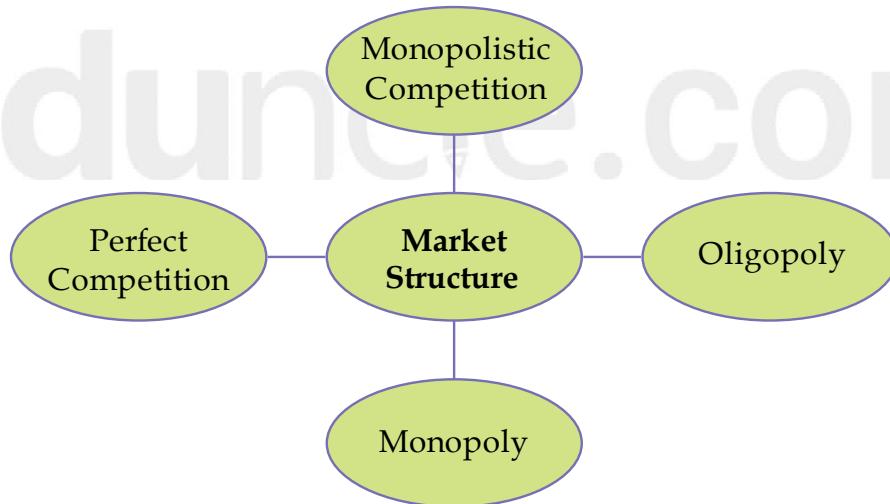
Thus, the market structure can be defined as, the number of firms producing the identical goods and services in the market and whose structure is determined on the basis of the competition prevailing in that market.

The term "market" refers to a place where sellers and buyers meet and facilitate the selling and buying of goods and services. But in economics, it is much wider than just a place; it is a gamut of all the buyers and sellers, who are spread out to perform the marketing activities.

Essential of Market

- Market is an Area and Not a Place
- Presence of Buyers and Seller
- Only one commodity
- Close Relations between Buyer and seller
- Bargaining for Price
- Knowledge of Market Condition

Types of Market Structure



1. Perfect Competition

The **Perfect Competition** is a market structure where a large number of buyers and sellers are present, and all are engaged in the buying and selling of the **homogeneous products** at a single price prevailing in the market. With many firms and a homogeneous product under perfect competition no individual firm is in a position to influence the price of the product that means price elasticity of demand for a single firm will be infinite.

Characteristics

- (i) **There are large number of buyers and sellers who compete among themselves:** The number is so large that the share of each seller in the total supply and the share of each buyer in the total demand is too small that no buyer or seller is in a position to influence the price, demand or supply in the market.
- (ii) **The products supplied by all firms are identical or are homogeneous in all respects so that they are perfect substitutes:** All goods must sell at a single market price. No Firm can raise the price of its product above the price charged by other firms without losing most or all of its business. Buyers have no preference as between different sellers and as between different units of commodity offered for sale; also sellers are quite indifferent as to whom they sell. For example, most agricultural products, cooking gas, and raw materials such as copper, iron, cotton, and sheet steel etc. are fairly homogeneous. In addition, all consumers have perfect information about competing prices.
- (iii) **Every firm is free to enter the market or to go out of it:** There are no legal or market related barriers to entry and also no special costs that make it difficult for a new Firm either to enter an industry and produce, if it sees profit opportunity or to exit if it cannot make a profit. If the above three conditions alone are fully filled, such a market is called pure competition. The essential feature of pure competition is the absence of the element of monopoly. Consequently, business combinations of monopolistic nature are not possible. In addition to the above stated three features of 'pure competition'; a few more conditions are attached to perfect competition.
- (iv) **There is perfect knowledge of the market conditions on the part of buyers and sellers:** Both buyers and sellers have all information relevant to their decision to buy or sell such as the quantities of stock of goods in the market, the nature of products and the prices at which transactions of purchase and sale are being entered into.
- (v) **Perfectly competitive markets have very low transaction costs:** Buyers and sellers do not have to spend much time and money finding each other and entering into transactions.
- (vi) **Under perfect competition, all Firms individually are price takers:** The Firms have to accept the price determined by the market forces of total demand and total supply. The assumption of price taking applies to consumers as well. When there is perfect knowledge and perfect mobility, if any seller tries to raise his price above that charged by others, he would lose his customers.

While there are few examples of perfect competition which is regarded as a myth by many, the agricultural products, Financial instruments (stock, bonds, foreign exchange), precious metals (gold, silver, platinum) approach the condition of perfect competition.

Perfect Competition Price Discrimination

In a perfectly competitive market, market have main problem for a profit maximization firm is not determine price of its product but to adjust its output to the market price so that profit is maximum.

Price-Output Determination under perfect competition

There are two well-known approaches to pricing under perfect competition:

1. Partial Equilibrium Approach
2. General Equilibrium Approach

1. Partial Equilibrium Approach : *In this approach we assume that the prices of various commodities are independent and do not mutually affect one another. This approach isolates the primary relation of supply, demand and price in regard to a particular commodity. Thus in this approach to pricing under perfect competition, demand for a commodity is determined on the assumption that the prices of the other commodities, prices of factors and production function remain the same.*

2. General Equilibrium Approach : *This approach does not assume that the prices of a good are determined independently of the prices of other goods. It explains the mutual and simultaneous determination of the prices of all goods and factors. Thus it looks at multi-market equilibrium.*

In the case of the inter-related goods, we have to resort to a general equilibrium approach. According to Stonier and Hague, "if X and Y are either strongly complementary or strongly competitive, a fall in the price of X can have a substantial effect on the demand for Y. General Equilibrium analysis attempts to take account of such relationship."

Table : Price-Determination Based on Demand and Supply

Demand (in Units)	Price (in Rupee)	Supply (in Units)
10	500	50
20	400	40
30	300	30
40	200	20
50	100	10

Equilibrium price will be Rs.300 where the Demand and Supply are equal i.e. 30 units.

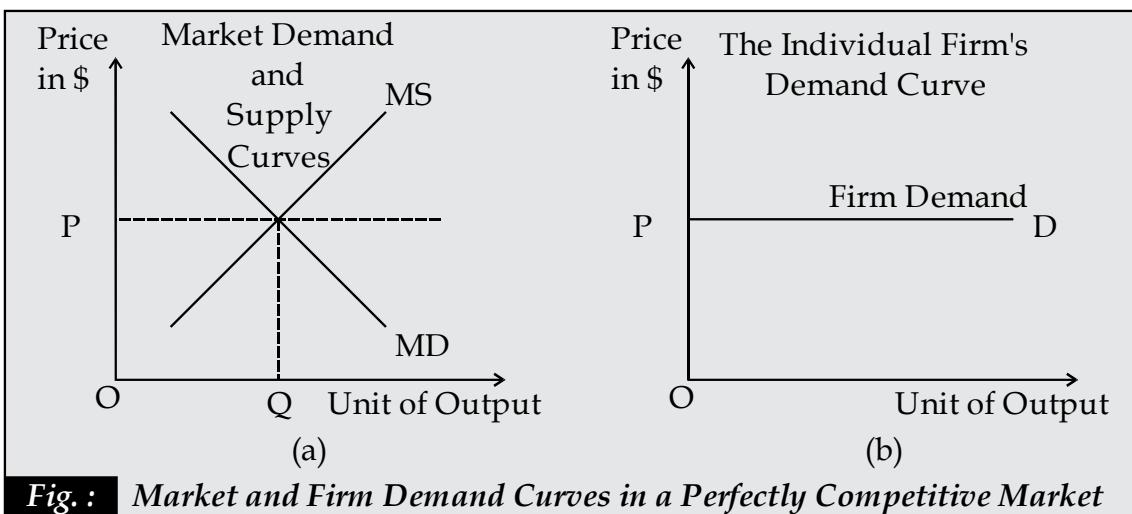


Fig. : Market and Firm Demand Curves in a Perfectly Competitive Market

The price at which demand and supply are equal is known as equilibrium price and the quantity bought and sold at the equilibrium price is known as equilibrium output.

In the diagram, equilibrium price is determined at the point P where both demand and supply are equal. The upper limit of the price of a product is determined by the demand. The lower limit of the price is determined by the production cost. The point P can be regarded as the position of stable equilibrium.

Under perfect competition a firm will not have any independence to fix the price of its own product. The industry is the price-maker and the firm is the price-taker.

In case of a firm, the price line which is equal to AR and MR, will be horizontal and parallel to OX axis. It shows that the same price has to be charged by the firm for all units supplied, irrespective of changes in demand.

$$\text{Equilibrium or market price} = AR = MR$$

Conditions for Equilibrium of a Firm

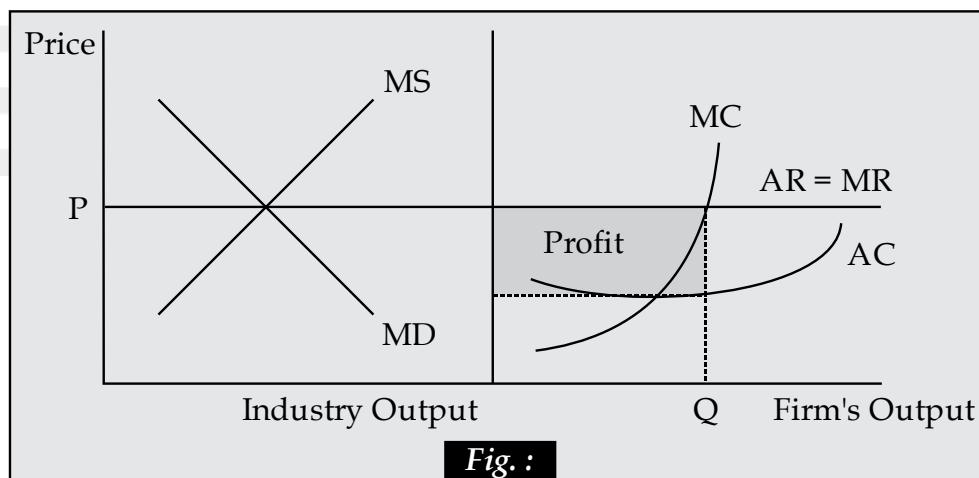
A Firm, in order to attain equilibrium position, has to satisfy two conditions as below : (Note that because competitive Firms take price as fixed, this is a rule for setting output, not price).

- (i) The marginal revenue should be equal to the marginal cost. For example $MR = MC$. If MR is greater than MC , there is always an incentive for the firm to expand its production further and gain by selling additional units. If MR is less than MC , the firm will have to reduce output since an additional unit adds more to cost than to revenue. Profits are maximum only at the point where $MR = MC$ because the demand curve facing a competitive firm is horizontal, so that $MR = P$, the general rule for profit maximization can be simplified. A perfectly competitive firm should choose its output so that marginal cost equals price.
- (ii) The MC curve should cut MR curve from below. In other words, MC should have a positive slope.

Determination of Short-Run Price

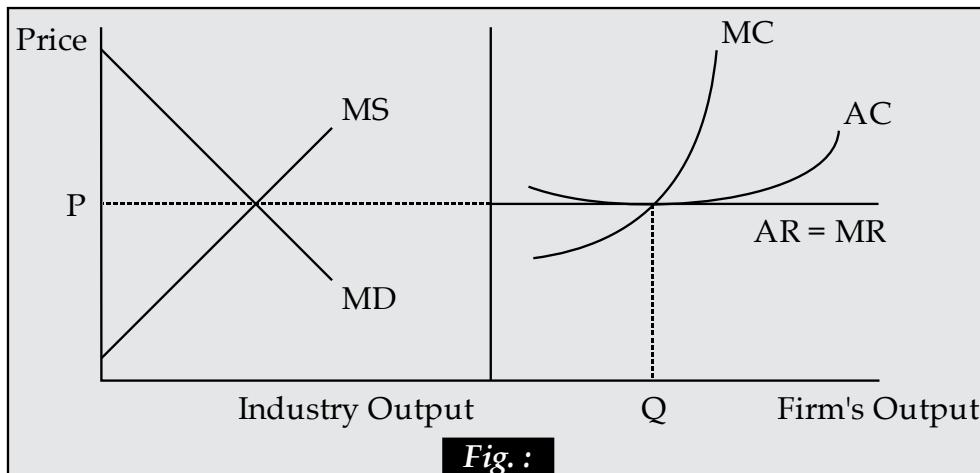
In the short run, the firm will have temporary equilibrium where $MR = MC$ and $AR = AC$. At this point, equilibrium output and price is determined. The short run price is called as a sub-normal price and it is not a stable price.

In the short run, firm will not be in the position to cover its fixed costs but it must recover short run variable costs for its survival in the market. Short run price should be at least equal to the minimum AVC .



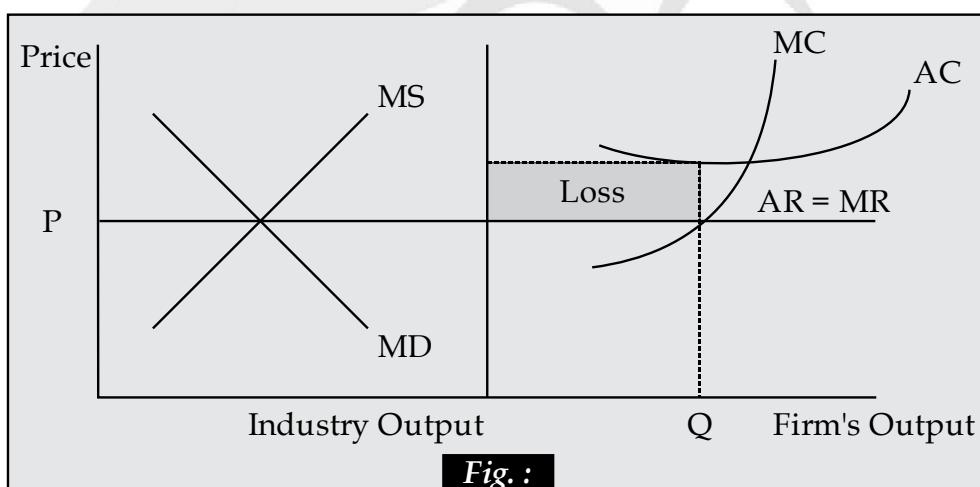
Firm is a price-taker. If the price is more than AC, then the firm will attain supernormal profit.

In this situation, $MC = MR$ but $AC < AR$



If AC is equal to price, then firm will attain normal profit.

In this condition $AC = MC = AR = MR = P$



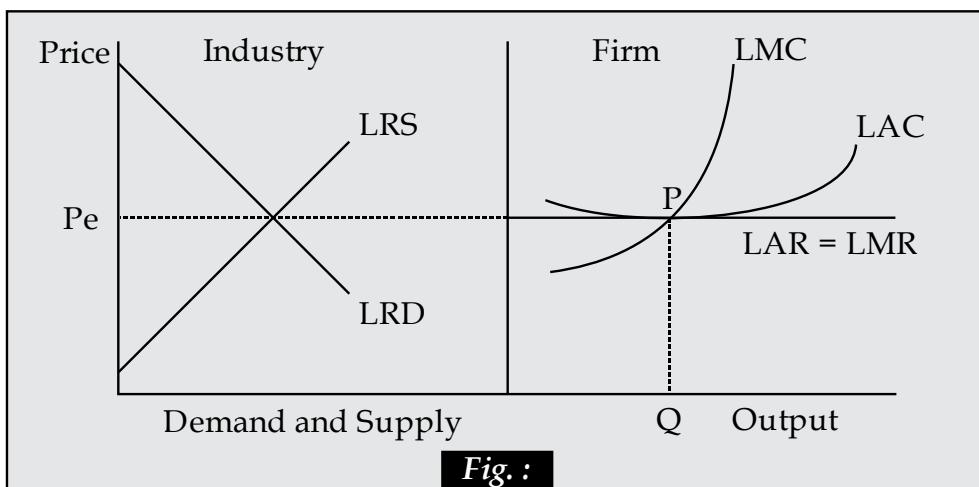
If AC is greater than price, there will be losses. In this situation, $MC = MR$ but $AC > AR$

Thus, in short run, a firm can either incur losses or earn supernormal profit or normal profit.

The main reason for this is that the firm does not get adequate time to make all kinds of adjustments to avoid losses in the short run.

In long run, a firm will attain only normal profit where $P = AR = AC = MR = MC$.

Long run equilibrium will be where $LMC = LMR = LAC = LAR = P$



In the long run, a competitive firm must be at the minimum point of the Long Average Cost curve to avoid losses.

In short run, demand plays an important role in the determination of price while in long run, supply is more important than demand in determination of price.

Monopoly

The word '**Monopoly**' means "**alone to sell**" Monopoly is a market situation in which there is only one seller of a product with barriers to entry of others. The product has no close substitutes. The cross elasticity of demand with every other product is very low. This means that no other firms produce a similar product.

Pure monopoly is never found in practice. However, in public utilities such as transport, water and electricity, we generally find a monopoly form of market.

Characteristics

- (1) **Single Seller of The Product** : In a monopoly market, there is only one Firm producing or supplying a product. This single Firm constitutes the industry and as such there is no distinction between Firm and industry in a monopolistic market. Monopoly is characterized by an absence of competition.
- (2) **Barriers to Entry** : In a monopolistic market, there are strong barriers to entry. The barriers to entry could be economic, institutional, legal or artificial.
- (3) **No Close-Substitutes** : A monopoly Firm has full control over the market supply of a product or service. A monopolist is a price maker and not a price taker. The monopolist generally sells a product which has no close substitutes. In such a case, the cross elasticity of demand for the monopolist's product and any other product is zero or very small. The price elasticity of demand for monopolist's product is also less than one. As a result, the monopolist faces a steep downward sloping demand curve.
- (4) **Market Power** : A monopoly Firm has market power i.e. it has the ability to charge a price above marginal cost and earn a positive profit.

Monopoly Price Discrimination

Study of price and equilibrium determination under monopoly is conducted in two time periods.

- (i) Short Period and
- (ii) Long Period

(i) Short Period

The monopolist maximizes his short-run profits if the following two conditions are fulfilled firstly the MC is equal to the MR. Secondly, the slope of MC (Marginal Cost) is greater than the slope of the MR (Marginal Revenue) at the point of intersection. The diagram for a monopoly is generally considered to be the same in the short run as well as the long run.

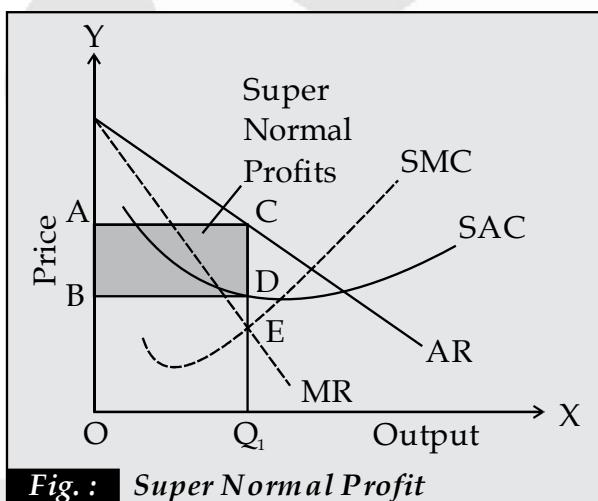
- Profit maximization occurs where $MR = MC$.
- The price Average Revenue (AR) is greater than Average Cost (AC) (Supernormal Profit)
- Usually, supernormal profit attracts new firms to enter the market, but there are barriers to entry in monopoly, and this enables the monopoly to keep supernormal profits.

In the short run, a monopolist has to work with a given existing plant. He can expand or contract output by varying the amount of variable factors. He cannot adjust the size of plant in the short run.

A monopolist in equilibrium may face three situations in the short run

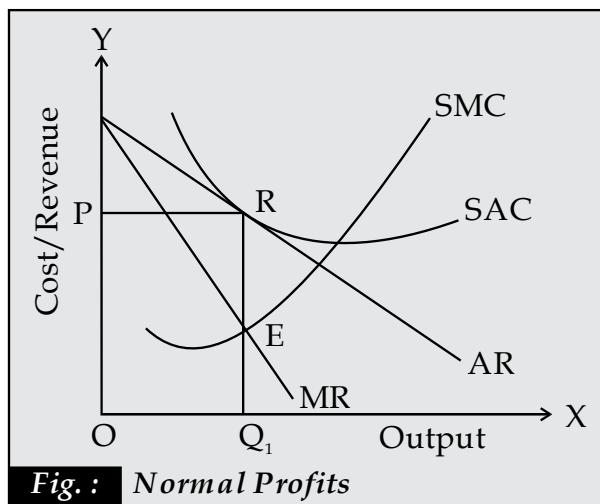
- (1) Super Normal Profit
- (2) Normal Profit
- (3) Minimum Losses

(1) Super Normal Profit : *If the price determined by the monopolist is more than AC, customer will get super normal profits.* The monopolist will produce up to the level where $MC = MR$. This limit will indicate equilibrium output. In Fig. output is measured on X-axis and price on Y-axis. SAC and SMC are the short run average cost and marginal cost curves while AR or MR are the average revenue or marginal revenue curves respectively.



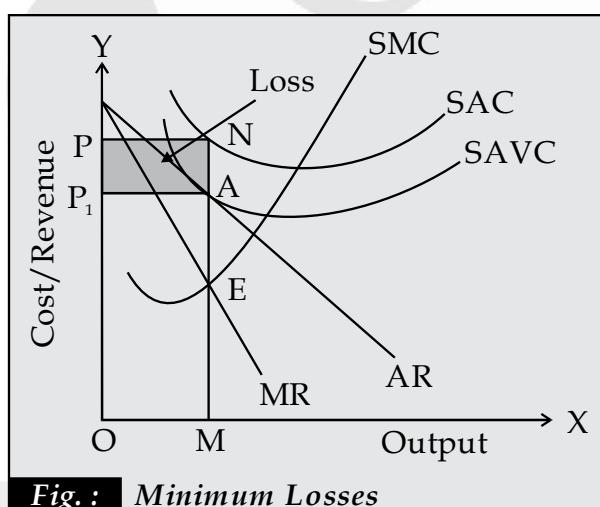
The monopolist is in equilibrium at point E because at point E both the conditions of equilibrium are fulfilled i.e., $MR = MC$ and MC intersects the MR curve from below. At this level of equilibrium the monopolist will produce OQ_1 level of output and sells it at CQ_1 price which is more than average cost DQ_1 by CD per unit. Therefore, in this case total profits of the monopolist will be equal to shaded area ABDC.

(2) Normal Profits : *A monopolist in the short run would enjoy normal profits when average revenue is just equal to average cost.* We know that average cost of production is inclusive of normal profits. This situation can be illustrated with the help of fig.



In Figure the firm is in equilibrium at point E. Here marginal cost is equal to marginal revenue. The firm is producing OM level of output. At OM level of output average cost curve touches the average revenue curve at point P. Therefore, at point 'P' price OR is equal to average cost of the total product. In this way, monopoly firm enjoys the normal profits.

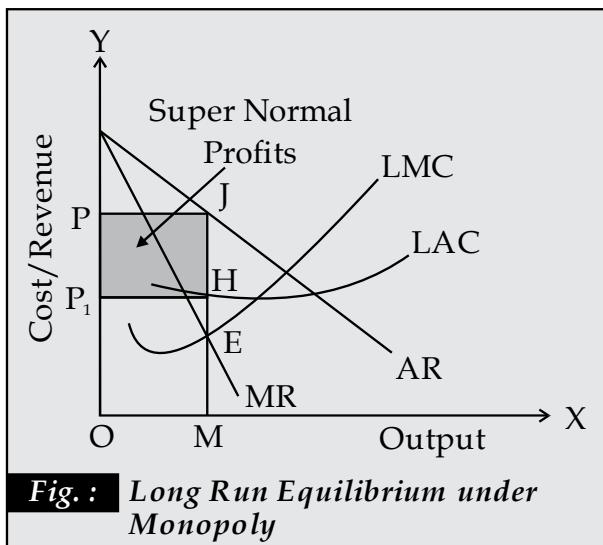
(3) Minimum Losses : *In the short run, the monopolist may have to incur losses. This situation occurs if in the short run price falls below the variable cost. In other words, if price falls due to depression and fall in demand, the monopolist will continue to produce as long as price covers the average variable cost. Once the price falls Below the average variable cost, monopolist will stop production. Thus, a monopolist in the short run equilibrium has to bear the minimum loss equal to fixed costs. Therefore, equilibrium price will be equal to average variable cost. This situation can also be explained with the help of Fig.*



In Figure monopolist is in equilibrium at point E. At point E marginal cost is equal to marginal revenue and he produces OM level of output. At OM level of output, equilibrium price fixed by the monopolist is OP_1 . At OP_1 price, AVC touches the AR curve at point A.

2. Long Run Equilibrium under Monopoly

Long-run is the period in which output can be changed by changing the factors of production. In other words, all variable factors can be changed and monopolist would choose that plant size which is most appropriate for specific level of demand. Here, equilibrium would be attained at that level of output where the long-run marginal cost cuts marginal revenue curve from below. This can be shown with the help of Fig.



In Fig. monopolist is in equilibrium at OM level of output. At OM level of output marginal revenue is equal to long run marginal cost and the monopolist fixes OP price. HM is the long run average cost? Price OP being more than LAC i.e., HM which fetch the monopolist super normal profits. Accordingly, the monopolist earns JM - HM = JH super normal profit per unit. His total super normal profits will be equal to shaded area PJHP₁.

Conditions for Price Discrimination : Price discrimination is possible only under the following conditions :

- (i) The seller should have some control over the supply of his product i.e. the Firm should have price setting power. Monopoly power in some form is necessary (not sufficient) to discriminate price.
- (ii) The seller should be able to divide his market into two or more sub-markets.
- (iii) The price-elasticity of the product should be different in different sub-markets. The monopolist fixes a high price for his product for those buyers whose price elasticity of demand for the product is less than one. This implies that, when the monopolist charges a higher price from them, they do not significantly reduce their purchases in response to high price.
- (iv) It should not be possible for the buyers of low-priced market to resell the product to the buyers of high priced market i.e. there must be no market arbitrage.

Thus, we note that a discriminating monopolist charges a higher price in a market which has a relatively inelastic demand. The market which is highly responsive to price changes is charged less. On the whole, the monopolist benefits from such discrimination.

Monopolistic

The concept of monopolistic competition was introduced by E.H Chamberline in his book " Theory of monopolistic Competition" in 1933. Where degree of competition is high but less than one the firm have some discretion in setting the price of their products. In other words large sellers selling the products that are similar but not identical and compete with each other on other factors besides price.

*The monopolistic competition is also called as **imperfect competition** because this market structure lies between the pure monopoly and the pure competition.*

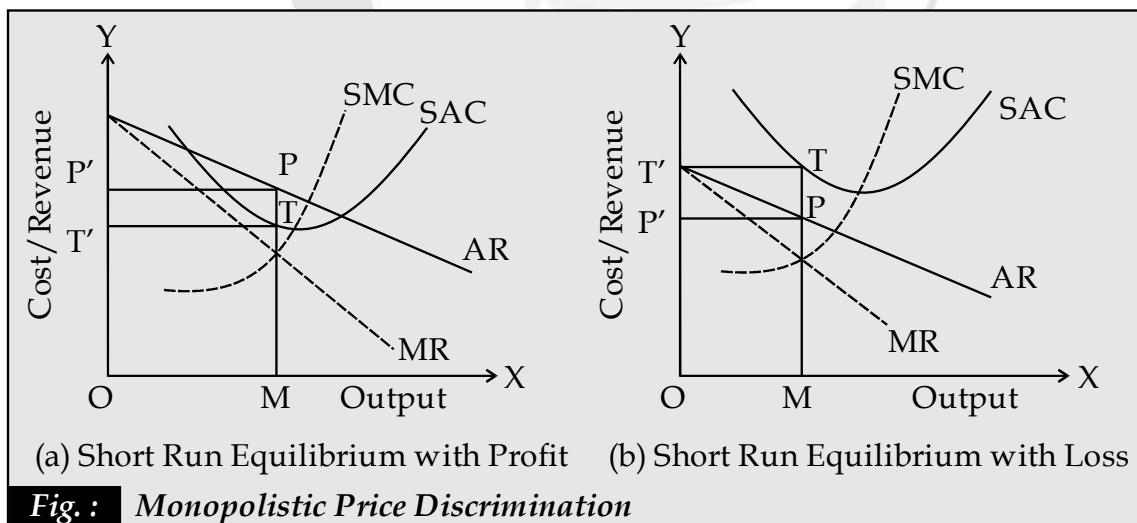
Characteristics

- (i) **Large Number of Sellers** : In a monopolistically competitive market, there are large numbers of independent firms who individually have a small share in the market.
- (ii) **Product Differentiation** : In a monopolistic competitive market, the products of different sellers are differentiated on the basis of brands because competing products are close substitutes, demand is relatively elastic, but not perfectly elastic as in perfect competition. Firms use size, design, color, shape, performance, features and distinctive packaging and promotional techniques to make their products different. Such differentiation may be true or fancied.
- (iii) **Freedom of Entry and Exit** : Barriers to entry are comparatively low and new Firms are free to enter the market if they find profit prospects and existing firms are free to quit.
- (iv) **Non-Price Competition** : In a monopolistically competitive market, firms are often in fierce competition with other firms offering a similar product or service, and therefore try to compete on bases other than price, for example: they include in aggressive advertising, product development, better distribution arrangements, efficient after-sales service and so on. A key base of non-price competition is a deliberate policy of product differentiation.

Monopolistic Price Discrimination

Under monopolistic competition, the firm will be in equilibrium position when marginal revenue is equal to marginal cost ,so long the marginal revenue is greater than marginal cost, the seller will find it profitable to expand his output, and if the MR is less than MC, it will reduce his output where the MR is equal to MC. In short run, therefore, the firm will be in equilibrium when it is maximizing profits, i.e., when $MR = MC$.

(a) **Short Run Equilibrium** : Short run equilibrium is illustrated in the following diagram:

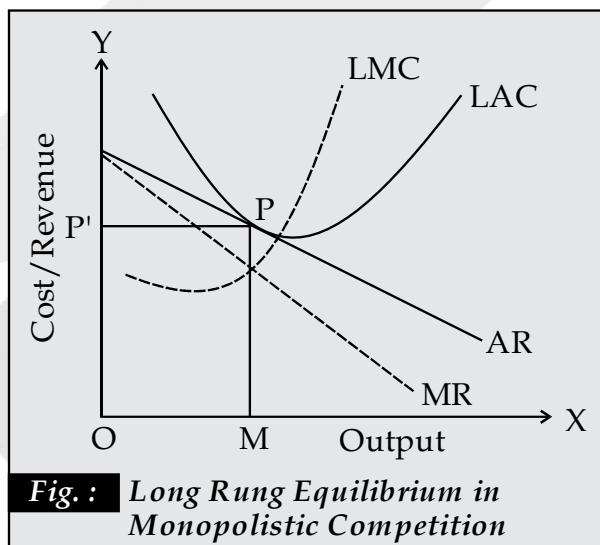


In the above diagram, the short run average cost is MT and short run average revenue is MP . Since the AR curve is above the AC curve, therefore, the profit is shown as PT . PT is the supernormal profit per unit of output. Total supernormal profit will be measured by multiplying the supernormal profit to the total output, i.e. $PT \times OM$ or $PTT'P'$ as shown in figure (a). The firm may also incur losses in the short run if it is facing AR curve below the AC

curve. In figure (b) MP is less than MT and TP is the loss per unit of output. Total loss will be measured by multiplying loss per unit of output to the total output, i.e., $TP \times OM$ or $TPP'T'$.

(b) Long Run Equilibrium : Under monopolistic competition, the supernormal profit in the long run is disappeared as new firms are entered into the industry. As the new firms are entered into the industry, the demand curve or AR curve will shift to the left, and therefore, the supernormal profit will be competed away and the firms will be earning normal profits. If in the short run firms are suffering from losses, then in the long run some firms will leave the industry so that remaining firms are earning normal profits.

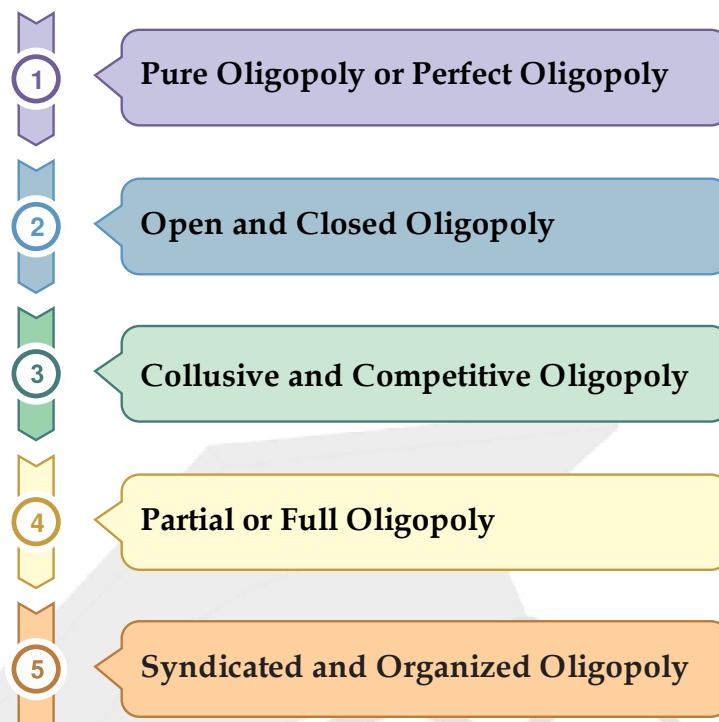
The AR curve in the long run will be more elastic, since a large number of substitutes will be available in the long run. Therefore, in the long run, equilibrium is established when firms are earning only normal profits. Now profits are normal only when $AR = AC$. It is further illustrated in the following diagram :



Oligopoly

The **Oligopoly Market** characterized by few sellers, selling the homogeneous or differentiated products. In other words, the Oligopoly market structure lies between the pure monopoly and monopolistic competition, where few sellers dominate the market and have control over the price of the product.

Types of Oligopoly



- **Pure Oligopoly or Perfect Oligopoly** occurs when the product is homogeneous in nature, e.g. Aluminum industry. This type of oligopoly tends to process raw materials or produce intermediate goods that are used as inputs by other industries. Notable examples are petroleum, steel, and aluminum. Differentiated or imperfect oligopoly occurs when goods sold is based on product differentiation, e.g. Talcum powder.
- **Open and Closed Oligopoly** : In an open oligopoly market new firms can enter the market and compete with the existing firms. But, in closed oligopoly entry is restricted.
- **Collusive and Competitive Oligopoly** : When few firms of the oligopoly market come to a common understanding or act in collusion with each other either in fixing price or output or both, it is collusive oligopoly. When there is absence of such an understanding among the firms and they compete with each other, it is called competitive oligopoly.
- **Partial or Full Oligopoly** : Oligopoly is partial when the industry is dominated by one large firm which is considered or looked upon as the leader of the group. The dominating firm will be the price leader. In full oligopoly, the market will be conspicuous by the absence of price leadership.
- **Syndicated and Organized Oligopoly** : Syndicated oligopoly refers to that situation where the firms sell their products through a centralized syndicate. Organized oligopoly refers to the situation where the firms organize themselves into a central association for fixing prices, output, quotas, etc.

Characteristics

1. **Few Sellers** : Under the Oligopoly market, the sellers are few, and the customers are many. Few firms dominating the market enjoys a considerable control over the price of the product.

2. **Interdependence** : it is one of the most important features of an Oligopoly market, wherein, the seller has to be cautious with respect to any action taken by the competing firms. Since there are few sellers in the market, if any firm makes the change in the price or promotional scheme, all other firms in the industry have to comply with it, to remain in the competition.
3. **Advertising** : Under Oligopoly market, every firm advertises their products on a frequent basis, with the intention to reach more and more customers and increase their customer base. This is due to the advertising that makes the competition intense.
4. **Competition** : It is genuine that with a few players in the market, there will be an intense competition among the sellers. Any move taken by the firm will have a considerable impact on its rivals. Thus, every seller keeps an eye over its rival and be ready with the counterattack.
5. **Entry and Exit Barriers** : The firms can easily exit the industry whenever it wants, but has to face certain barriers to entering into it. These barriers could be Government license, Patent, large firm's economies of scale, high capital requirement, complex technology, etc. Also, sometimes the government regulations favor the existing large firms, thereby acting as a barrier for the new entrants.
6. **Lack of Uniformity** : There is a lack of uniformity among the firms in terms of their size, some are big, and some are small.

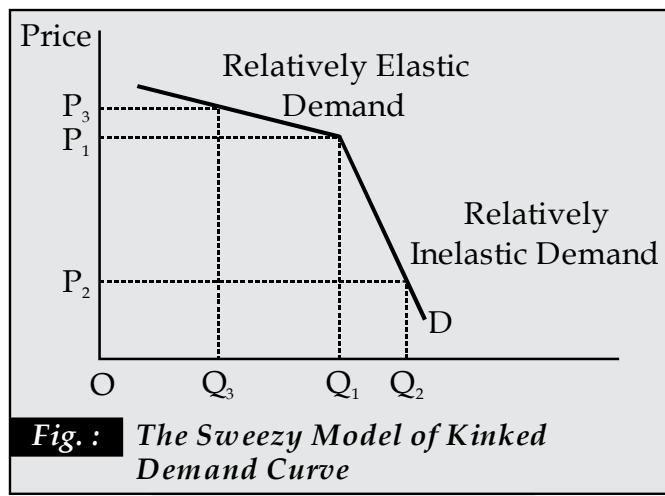
Price Discrimination of Oligopoly

We define in oligopoly price discrimination the non-collusive oligopoly model of Sweezy, and to the collusive oligopoly models relating to cartels and price leadership.

1. The Sweezy Model of Kinked Demand Curve (Rigid Prices)

In his article published in 1939, Prof. Sweezy presented the kinked demand curve analysis to explain price rigidities often observed in oligopolistic markets. Sweezy assumes that if the oligopolistic firm lowers its price, its rivals will react by matching that price cut order to avoid losing their customers. Thus the firm lowering the price will not be able to increase its demand much. This portion of its demand curve is relatively inelastic.

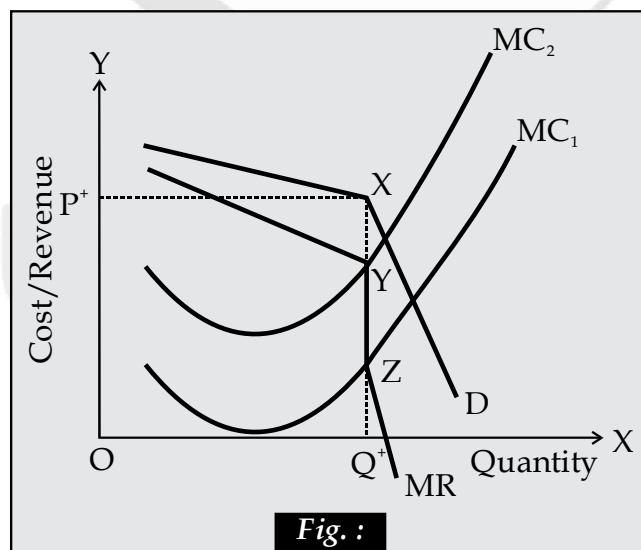
- (1) There are few firms in the oligopolistic industry.
- (2) The product produced by one firm is a close substitute for the other firms.
- (3) The product is of the same quality. There is no product differentiation.
- (4) There are no advertising expenditures.
- (5) There is an established or prevailing market price for the product at which all the sellers are satisfied.
- (6) Each seller's attitude depends on the attitude of his rivals.
- (7) Any attempt on the part of a seller to push up his sales by reducing the price of his product will be counteracted by the other sellers who will follow his move.
- (8) If he raises the price, others will not follow him. Rather they will stick to the prevailing price and cater to the customers, leaving the price-raising seller.
- (9) The marginal cost curve passes through the dotted portion of the marginal revenue curve so that changes in marginal cost do not affect output and price.



Price is initially set at OP_1 , at the kink of the demand curve, and the oligopolists sells an output of OQ_1 . If the firm tries to reduce price to OP_2 in order to sell more, other firms would match this reduction so that sales would increase only slightly, or more technically, by a less than proportionate amount, to OQ_2 . The demand curve would be inelastic and the reduction in price would not represent a sound strategy as total sales revenue, and probably profit levels, would both fall; clearly the area $OP_1 \times OQ_1$, representing initial revenue, is greater than $OP_2 \times OQ_2$, the producer's revenue after the reduction in price. The alternative ploy of raising price to OP_3 would also be unsound as none of the other oligopolists would follow suit, and a large or more than proportionate fall in demand would follow.

Here, the demand curve would be elastic and the change in price would again cause total revenue to fall - $OP_3 \times OQ_3$ is smaller than $OP \times OQ$. The logical conclusion from this analysis would therefore be that oligopolists would benefit from keeping prices stable so long as all could enjoy reasonable profits at the established price.

The kinked demand curve theory also has other implications. A normal demand curve becomes less elastic as price falls, but the oligopolies' demand curve becomes less elastic suddenly at the kink. Mathematically, this causes the MR curve to suddenly change to a different position, as can be seen in Figure, so that a discontinuity exists along the vertical line YZ above output OQ_1 .



This implies that the MC curve can increase or decrease between this discontinuity, without necessitating a change in the profit maximizing output OQ_1 or price OP_1 - the oligopolistic will absorb the higher costs. According to normal demand and supply analysis, an increase in costs would cause a fall in output and an increase in price. An example of cost absorption in practice is when the price of crude oil rises and petrol companies wish to increase price, but do not as no company wants to be the first to do so.

2. Collusive Oligopoly

Collusive oligopoly is a situation in which firms in a particular industry decide to join together as a single unit for the purpose of maximizing their joint profits and to negotiate among themselves so as to share the market. The former is known as the joint profit maximization cartel and the latter as the market-sharing cartel.

There is another type of collusion, known as leadership, which is based on tacit agreements. Under it, one firm acts as the price leader and fixes the price for the product while other firms follow it. Price leadership is of three types: low-cost firm, dominant firm, and barometric.

(A) Cartels

A cartel is an association of independent firms within the same industry. The cartel follows common policies relating to prices, outputs, sales and profit maximization and distribution of products. Cartels may be voluntary or compulsory and open or secret depending upon the policy of the government with regard to their formation. Thus cartels have many forms and use many devices in order to follow varied common policies depending upon the type of the cartel. We discuss below the two most common types of cartels: (1) Joint profit maximization or perfect cartel; and (2) market-sharing cartel.

1. Joint Profit Maximization Cartel

The uncertainty to be found in an oligopolistic market provides an incentive to rival firms to form a perfect cartel. Perfect cartel is an extreme form of perfect collusion. In this, firms producing a homogeneous product form a centralized cartel board in the industry. The individual firms surrender their price-output decisions to this central board.

The board determines output quotas for its members, the price to be charged and the distribution of industry profits. Since the central board manipulates prices, outputs, sales and distribution of profits, it acts like a single monopoly whose main aim is to maximize the joint profits of the oligopolistic industry.

Assumptions

The analysis of joint profit maximization cartel is based on the following assumptions :

1. Only two firms A and B are assumed in the oligopolistic industry that forms the cartel.
2. Each firm produces and sells a homogeneous product that is a perfect substitute for each other.
3. The number of buyers is large.
4. The market demand curve for the product is given and is known to the cartel.
5. The cost curves of the firms are different but are known to the cartel.
6. The price of the product determines the policy of the cartel.
7. The cartel aims at joint profit maximization.

2. Market-Sharing Cartel

Another type of perfect collusion in an oligopolistic market is found in practice which relates to market-sharing by the member firms of a cartel. The firms enter into a market-sharing agreement to form a cartel "but keep a considerable degree of freedom concerning the style of their output, their selling activities and other decisions."

There are two main methods of market-sharing :

- (a) Non-price competition; and
- (b) Quota system.

(a) Non-Price Competition Cartel : The non-price competition agreement among oligopolistic firms is a loose form of cartel. Under this type of cartel, the low-cost firms press for a low price and the high-cost firms for a high price, but ultimately, they agree upon a common price below which they will not sell.

Such a price must allow them some profits. The firms can compete with one another on a non-price basis by varying the color, design, shape, packing, etc. of their product and having their own different advertising and other selling activities. Thus each firm shares the market on a non-price basis while selling the product at the agreed common price.

This type of cartel is inherently unstable because if one low-cost firm cheats the other firms by charging a lower price than the common price, it will attract the customers of other member firms and earn larger profits. When other firms come to know of this, they will leave the cartel. A price war will start and ultimately the lowest-cost firm will remain in the industry.

(b) Market Sharing by Quota Agreement : The second method of market sharing is the quota agreement among firms. All firms in an oligopolistic industry enter into a collusion for charging an agreed uniform price, but the main agreement relates to the sharing of the market equally among member firms so that each firm gets profits on its sales.

Assumptions

This analysis is based on the following assumptions :

1. There are only two firms that enter into market-sharing agreement on the basis of the quota system.
2. Each firm produces and sells a homogeneous product which is a perfect substitute for each other.
3. The number of buyers is large.
4. The market demand curve for the product is given and known to the cartel.
5. Each firm has its own demand curve having the same elasticity as that of the market demand curve.
6. The cost curves of the two firms are identical.
7. Both firms share the market equally.
8. Each sells the product at the agreed uniform price.
9. There is no threat of entry¹ by new firms.

Price Leadership

Price Leadership is another form of collusion in an oligopoly market. In this form one firm sets the price and other firms follow it because it is advantageous to them or because they prefer to avoid uncertainty.

There are various forms of price leadership the most common types of leadership are :

- Price leadership by low cost firm
- Price leadership by a large (dominant) firm
- Barometric Price leadership

Duopoly

This kind of Imperfect Competition is characterized by having only two firms in the market producing a homogeneous good. For simplicity purposes, oligopolies are normally studied by analyzing duopolies. What strategies firms follow and their interactions are key features of this Market Structure.

There are many examples of duopoly including the following :

- Coca-Cola and Pepsi (soft drinks), Unilever and Proctor & Gamble (detergents)
- Bloomberg and Reuters (Financial information services), Sotheby's and Christie's (auctioneers of antiques/paintings)
- Airbus and Boeing (aircraft manufacturers)

In these imperfectly competitive markets **entry barriers** are high although there are usually smaller players in the market surviving successfully. The high entry barriers in duopolies are usually based on one or more of the following: brand loyalty, product differentiation and huge research economies of scale.

Comparison chart of Market Structure

Market Structure				
Characteristics	Pure Competition	Monopolistic Competition	Oligopoly	Pure Monopoly
Number of Seller	Many Firms	Many Firms with Non-Interdependent Pricing and Quantity Decisions	Few Firms Interdependent Pricing and Quantity Decisions	Single Seller
Number of Buyers	Many Buyers	Many Buyers	Unspecified	Unspecified
Barriers to Entry	None	Very Low	High	Complete
Entry and Exit Activity	Yes, Firms have the freedom to enter and exit	Yes, Firms have the freedom to enter and exit	Difficult entry (often due to economies of scale)	Entry Blocked
Homogeneous or Differentiated Product ?	Homogeneous Product, all goods are perfect substitute for Consumers	Differentiated Products, but close substitute for consumer so their demand curve is elastic	Product can be differentiated or Non Differentiated	A single Homogeneous Product with no close Substitute

Short Run Profit	Available	Available	Available	Available
Long Run Profit	No	No	Available if entry is blocked and the colluding cartel holds together (This is unlikely because cartel tend to fall apart).	Available
Price Taker or Price Searcher	Price taker the firm choose quantity but take price from the market	Price Searcher	Price Searcher	Price Searcher
Draw Demand Curve Facing the Firm	Perfectly elastic	Very Elastic but not perfectly elastic because close substitute exist	Inelastic to be an effective oligopoly	Inelastic to be an effective monopoly

Ques. The Kinked demand curve model of oligopoly was developed by

(NTA UGC-NET Jan. 2017 P-II)

(1) Augustin Cournot	(2) Stackelberg
(3) Edge worth	(4) Sweezy

Ans. (4) The kinked demand curve of oligopoly was developed by Paul M. Sweezy in 1939. Instead of laying emphasis on price-output determination, the model explains the behavior of oligopolistic organizations. The model advocates that the behavior of oligopolistic organizations remain stable when the price and output are determined.

This implies that an oligopolistic market is characterized by a certain degree of price rigidity or stability, especially when there is a change in prices in downward direction. For example, if an organization under oligopoly reduces price of products, the competitor organizations would also follow it and neutralize the expected gain from the price reduction.

On the other hand, if the organization increases the price, the competitor organizations would also cut down their prices. In such a case, the organization that has raised its prices would lose some part of its market share.

Ques. In perfect competition, the demand curve of a firm is (NTA UGC-NET Dec. 2012 P-III)

(A) Vertical	(B) Horizontal
(C) Positively sloped	(D) Negatively sloped

Ans. (B) The demand curve is horizontal for each of the individual firms in a perfectly competitive market. This is because there are many of them, they each sell the same thing, so if they want to charge more than the prevailing market price, nobody would buy from them.

Ques. Assertion (A) : *Mark-up pricing is a method of determining price.*

Reason (R) : $P = ATC + (m \times ATC)$ is the expression for that.

Codes :

(NTA UGC-NET June 2013 P-III)

- (A) (A) is correct but (R) is not correct.
- (B) Both (A) and (R) are correct.
- (C) Both (A) and (R) are not correct.
- (D) (R) is correct, but (A) is not correct.

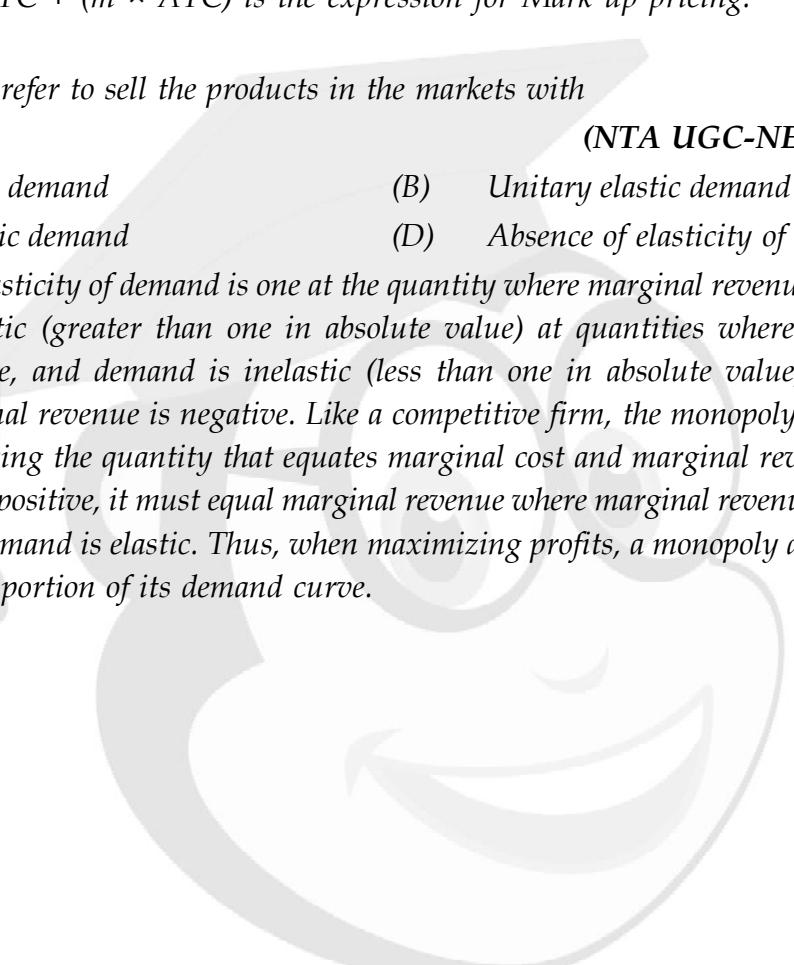
Ans. (B) Both (A) and (R) are correct. because *Mark up pricing is a method of determining price and $P = ATC + (m \times ATC)$ is the expression for Mark up pricing.*

Ques. Monopolists prefer to sell the products in the markets with

(NTA UGC-NET Dec. 2014 P-III)

- (A) Elastic demand
- (B) Unitary elastic demand
- (C) Inelastic demand
- (D) Absence of elasticity of demand

Ans. (A) The elasticity of demand is one at the quantity where marginal revenue equals zero, demand is elastic (greater than one in absolute value) at quantities where marginal revenue is positive, and demand is inelastic (less than one in absolute value) at quantities where marginal revenue is negative. Like a competitive firm, the monopoly maximizes profits by producing the quantity that equates marginal cost and marginal revenue. Since marginal cost is positive, it must equal marginal revenue where marginal revenue is positive, meaning that demand is elastic. Thus, when maximizing profits, a monopoly always operates on the elastic portion of its demand curve.



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